Name: Date:

مدرسة الاتحاد الوطنية الخاصة - العين
Al Ittihad National Private School - Al Ain

Title: Geometry: **7.1 Inverse Functions and Function Composition**

LO: To find inverse functions and use composition of functions to create new functions.

Instructions: Copy the following questions to your notebook and solve them. Once done submit them on Schoology

Q1) Find the inverse function of $j(x) = \frac{3}{5}x + 10$

Q2) A UAE mobile provider calculates the total cost of a data plan using this rule:

- Multiply the number of gigabytes used by **8**
- Then add a service fee of **20 AED**

Questions:

1. Write a function to model the total cost.
2. Write the inverse function.
3. If a customer paid **100 AED**, explain how the inverse function helps find how many GB were used.

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Q3) A Dubai taxi fare is calculated in two steps.

Given:

$$g(x) = 3x$$
$$f(x) = x + 12$$

Where $x$represents the distance in kilometers.

Questions:

1. Write the **composite function** $(fog)(x)$.
2. Write the **inverse of the composite function**.

Challenge [Extension]:

Given $f(x) = 5x + 7$ and $g(x) = 3x - 18$

Find the value of x if $f(x) = g(x)$

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